

Elizabeth River PCB TMDL Informational Meeting Summary

Nov 5, 2009

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PCBs in the Elizabeth River have been detected through fish tissue and water column analyses in levels high enough to require a fish consumption advisory. VADEQ is proposing the use of EPA Method 1668B to measure levels of individual PCB congener concentrations which currently go undetected because the common method used does not have low level detection. The individual congeners are then summed to yield total PCBs (tPCBs). The Elizabeth River is heavily industrialized with many types of facilities located in the watershed. Part of the TMDL process is to determine the sources of the pollutant and then require reductions to the amount of pollutant coming from each source so that the water quality standards can be met. All VPDES permit holders as well as those with individual industrial storm water permits in the watershed were invited to this meeting to discuss how to obtain more water quality data and how the data will be used.

- **PCB Sample and Analysis timeframe:** the TMDL shall be completed and submitted to EPA during 2012 – 2014 timeframe (to be established by spring 2010). To meet that timeframe, it was determined that a reasonable period for completing this voluntary monitoring is **18—24 months (from November 2009)**.
 - **PCB Results Submitted by: April 2011 – October 2011.**

Below is a summary of questions asked during the November 5th, 2009 meeting and the responses:

- **What is the purpose of the ambient water data?** The data will be used for modeling and source assessment/development of the TMDL. More ambient data are needed for use in the calibration and validation of the model.
- **Will a 3rd party validate the (ambient) data?** This normally is not performed; however, it is possible to have the data validated by a 3rd party.
- **Who collected the (ambient) samples?** Staff from the DEQ-TRO monitoring section collected the samples using approved sampling methods (the approved QAPP is available upon request).
- **Will there be training for Point Source sampling?** Appendix C of the Point Source Monitoring Guidance includes an SOP for collecting effluent samples. Flexibility is built into the PCB monitoring guidance to help control costs.
- **Are PCB congeners measured during fish tissue analysis?** VIMS provides the analytical service for fish tissue and has provided congener specific PCB data. The congener data are not used by DEQ in assessing the data for impairments nor are they used by the VDH in their determination of Fish Consumption Advisories. PCBs are regulated as tPCBs which is defined as the summation of all available congeners. A congener analysis for composition similarity between fish tissue and water samples can be performed.

- **Why not focus on dioxin-like congeners?** EPA recommends tPCBs be used for state water quality criterion since toxicological information is lacking for the majority of PCB congeners.
- **Is there a PCB sediment criteria factor?** The biota sediment accumulation factor (BSAF) can estimate the potential for bioaccumulation from sediment to aquatic life. DEQ has no protective sediment criteria for fish tissue although the NOAA derived Effects Range Median (ER-M) is used to assess aquatic life designated use in estuarine systems.
- **Are there more plans for DEQ sampling?** Yes, DEQ would like to collect additional ambient samples as well as have facilities collect effluent samples across the watershed. The target date to complete this TMDL is 2012-2014, so there is ample time to generate data.
- **Were blanks collected as part of the sampling process?** No field or equipment blanks were collected due to budget constraints. This was also in part due to a minimal exposure time during the collection process. The exposure time from when the bottle was uncapped (< 5 secs), submerged in the water and filled, and then re-capped (< 5 secs) was minimal. Certified clean (solvent rinsed) bottles were used for collection. A bottle blank yielded a tPCB concentration of 3 pg/L.
- **Was clean-sampling method used to collect the samples?** DEQ used a method where ambient samples were collected directly into solvent rinsed bottles which eliminated potential contamination from sampling devices.
- **Compliance protocol for clean metal sampling is to use field blanks. How can it be feasible to not use this protocol and allow variability in your sampling protocol?** The study was designed to get the biggest bang for the buck and analyzing lab water contained in a narrow neck bottle with minimal exposure to air (< 10 secs) was deemed too costly. Field blanks will be collected in the future studies to ensure PCB contamination is not introduced via the collection process.
- **Was dry sampling variability based on tidal flow?** Sampling under wet or dry condition was not timed or associated with the tidal cycle in any way. Yes, there was likely temporal variability in a source area because of tidal action.
- **EPA method 1668 is being used in the development of the TMDL. Is this method required for all permit holders?** If PCB data are collected by a permittee, 1668 is the recommended method to use. However, DEQ is not mandating collection of PCB data at this time but is asking that samples be voluntarily collected and analyzed. The data will greatly enhance the development of the TMDL and provide greater accuracy of the point source PCB load. If data are lacking from identified sources (as identified per DEQ's PCB point source monitoring guidance - i.e., specific SIC codes), then PCB loadings will be estimated for those sources within the TMDL. Once a baseline load and WLA are included in a TMDL, PCB monitoring will then be required as part of a permit special condition if PCB data were not previously collected.
- **Should a site be monitored if there is suspicion of PCBs present?** Yes, monitoring should be performed to determine the extent of the PCB loading contribution to the watershed. This information will enhance the accuracy of the TMDL.

- **Between in-stream sampling and point-source sampling, which one is needed more for the TMDL?** For the source assessment portion of the TMDL study, more data are needed from perspective sources which will be used as PCB source input to the model. The more PCB source input data that are available from a multitude of facilities, the more representative the TMDL and perspective loadings will be. Additional instream data are also needed to help in the calibration and validation of the PCB model.
- **Were the historical PCB data collected using other methods?** Yes. However, detection levels from early years of analyzing water samples are not comparable with method 1668 and the typical results yielded non-detectable PCBs concentrations. Of course historic sediment data will be used in the development of the model.
- **Have previous DEQ TMDLs for PCBs identified point sources as contributing PCB loads?** Yes, a TMDL on Roanoke found a textile facility to be a significant source of PCBs after it had undergone a TSCA clean-up. Other facilities are also contributing PCBs in the Roanoke watershed on an on-going basis.
- **What is the average cost per sample?** Estimated at \$700 per sample (at Texas A&M Univ), but the cost will increase by 20% due to NELAC certification. Costs at private laboratories can run \$1,000-\$1,200 per sample although there is a cost benefit to batching samples in groups of 20. It appears that labs will work with permittees in holding samples to accommodate sample batching.
- **Will labs collect the samples?** Yes, some labs will collect and analyze the samples.
- **Can the TMDL be complete without an MS4 input?** The MS4 load is captured in the Waste Load Allocation (WLA) because it is considered a point source. The localities are aware of the need for data from the MS4s in the watershed.
- **How will allocations be calculated for contaminated sites?** NPL sites in the area will be pulled from the list. If it is remediated, then the load will be calculated based on the amount estimated that is still present. A load will still be given for the site. The Universal Soil Loss Equation (USLE) is used to estimate runoff from these sites. This approach was used in the Potomac River PCB TMDL and resulted in low PCB loads from remediated sites.
- **Are non-point sources considered in the calculation?** Yes, every source is accounted for in the TMDL process including atmospheric deposition as well as non-regulated storm water (runoff). This is part of the calculated Load Allocation.
- **Permit compliance (special conditions) has guidance for wet weather-sampling. What is the protocol for the TMDL?** The PCB point source monitoring guidance was developed to be consistent with storm water collection requirements.
- **How is a storm water load calculated?** The amount of impervious area from a site, coupled with local precipitation information and available PCB data are used to determine the PCB load that is originating from runoff.
- **How was the watershed delineated for the TMDL?** The current DCR watershed boundary for the Elizabeth River was used to determine permitted

facilities within the watershed (invited to the November 5th, 2009 meeting). The modeler developing the TMDL will further refine the watershed boundaries for the study. The boundaries may not be the same as originally presented.

- **How should monitoring at multiple outfalls be considered?** The use of representative outfalls is acceptable. Consult with the DEQ permit writer to rationalize which outfalls should be sampled.
- **Estimated lab costs are fairly high, is there a way to reduce the cost?** Samples can be batched from several facilities. By coordinating with other permittees and labs, the sampling/analytical costs can be minimized.
- **When calculating the Waste Load Allocation, isn't it better to have general baseline numbers for the model to allow for variability instead of using specific data from the point sources?** To determine the pollutant load, information is needed for all inputs to the system. Currently, PCB input data from point sources is lacking. The full development of the model requires adequate ambient data as well as data from all the inputs (point sources, MS4, contaminated sites, atmospheric deposition, non-regulated SW, and sediment).
- **Have transient sources of PCBs (ships) been considered as potential sources?** This idea requires additional investigation. Other studies completed in New York Harbor and Delaware Bay should be referenced to determine how this source may have been taken into account within the development of those TMDLs.
- **Who approves Pollutant Minimization Plans?** If the existing PCB load (baseline condition) exceeds the TMDL condition (WLA), then a reduction in the PCB load will be necessary. Upon permit reissuance, a Special Condition will be placed in the permit requiring that a PMP be submitted for approval. DEQ will provide guidance for the requirements of an approvable PMP. The Tidewater Regional Office, with assistance from DEQ's Central Office, will approve the PMP.